ABSTRACT

THESIS: Testing Hospital Capacities for Response to a Mass Casualty Urban Tornado Event

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Much of the population of the United States resides east of the Rocky Mountains where conditions are favorable for tornadoes. A large proportion of this population is located within urban areas which have been growing in size. This observed growth has increased the frequency of tornadoes interacting with urban areas. This study analyzed hospitals in the Chicago metropolitan area to determine if they could meet the demands of a mass casualty urban tornado event. This was accomplished through the construction of a spatial decision support system (SDSS). This involved the creation of a hypothetical tornado path, calculating the affected population and total casualties, and analyzing the post-disaster status of the road network and hospital facilities. The results of this project will allow meteorologists and emergency professionals to visualize possible scenarios for an urban tornado event. This will lead to collaborations among local emergency planners regarding the efficient allocation of resources. This study continues the incorporation of GIS technologies into emergency planning and expands the use of SDSS's in emergency preparedness. The goal of this project was to prove that the Chicago metropolitan medical network could meet the patient demand brought by a mass casualty urban tornado event.